

# Identifying and Treating Mobility and Stability Issues of the Extremities Through the Use of Therapeutic Exercise Strategies



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## Course Description:

This class is a 4 hour “hands-on” workshop exploring mobility and stability issues of the extremities through observation and evaluation of movement, followed by addressing these issues with the use of therapeutic exercise and home exercise instruction.

A small didactic overview is followed by a workshop “Lab” where participants will engage in therapeutic exercise interventions paired with mobility and stability issues.

## Learning Objectives:

1. Participant will be able to identify at least 4 mobility issues potentially affecting upper extremity function.
2. Participant will be able to identify at least 4 mobility issues potentially affecting lower extremity function.
3. Participant will be able to identify at least 4 stability issues potentially affecting upper extremity function.
4. Participant will be able to identify at least 4 stability issues potentially affecting lower extremity function.
5. Participant will be able to create a therapeutic exercise program to improve at least 4 mobility issues affecting upper extremity function.
6. Participant will be able to create a therapeutic exercise program to improve at least 4 mobility issues affecting lower extremity function.
7. Participant will be able to create a therapeutic exercise program to improve at least 4 stability issues affecting upper extremity function.
8. Participant will be able to create a therapeutic exercise program to improve at least 4 stability issues affecting lower extremity function.

## Bibliography and Recommended Reading

1. Fascia in Sports and Movement. Schleip, et al. Handspring Publishing. 2015.
2. The Fascia – Anatomy, Dysfunction and Treatment. Paoletti. Eastland Press. 2006.
3. Fascia – The Tensional Network of the Human Body. Schleip, Findley, Chaitow, Huijing. Elsevier. 2012.
4. Architecture of Human Living Fascia – The Extracellular Matrix of Cells Revealed Through Endoscopy. Guimberteau. Armstrong. Handspring Publishing. 2015.
5. Shift Movement Science: [www.shiftmovmentscience.com](http://www.shiftmovmentscience.com)

Class Schedule:

9:00 am to 9:30 am – Power Point Presentation Review

9:30 am – 10:15 am – Identifying Mobility and Stability Issues Through Movement.

Two Components to Decreased ROM – Tissue mobility and end range strength. Identifying both.

10:15 – 11:15– 8 Stretches Commonly Done Incorrectly, Stick Stretches, Therapy Ball Stretches, Self-Release and Mobilization

11:15 – 11:30 Break

11:30 am to 12:30 pm – Shoulder Exercises 20 Minute Protocol, Wrist and Elbow 20 Minute Protocol, End Range Hip 20 Minute Protocol, Ankle/Knee 20 Minute Protocol

12:30 pm to 12:45 – Osgood-Schlatter Disease Protocol

12:45 – 1:00 Questions and Answers

## Stick Stretches:

### Wrists:

1. Wrist Extension with Stick:
  - Begin on your hands and knees with stick in front of you.
  - Place fingers on stick with fingers pointing toward you.
  - Keep elbows straight and walk knees backward until you feel a good stretch.
  - Sit onto your heels, stretching further.
  - Make sure your elbows are not hyperextended!!!!
  - Now do the same thing with your elbows bent.



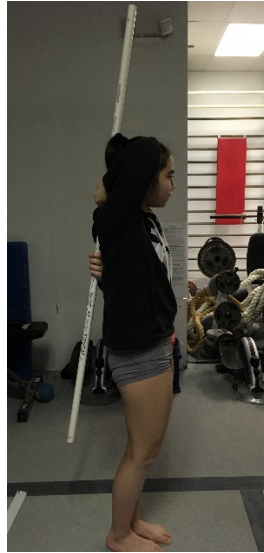
### Shoulders:

2. Lat Stretch:
  - Use a stick and a block for this stretch.
  - Kneel in front of a block and place your elbows on the block.
  - Hold the stick with palms down and bend your elbows to 90 degrees.
  - Push your chest through your arms stretching your shoulders.
  - If you have a partner ask them to assist by pushing your shoulders further.



### 3. Shoulder Internal/External Rotation:

- Place a stick behind your back holding one end behind your head and the other behind your low back. (thumbs facing each other)
- Bring thumbs as close to each other as you can.
- Now push your upper elbow backward and your lower elbow forward.
- Switch to the other side.



### 4. Shoulder/Thoracic Extension:

- Place stick behind your back and clasp with both hands.
- Open shoulders and push chest forward.
- Now lift arms upward behind you.



## Hips:

### 6. Hamstring Stretch:

- Sit in a long sitting position.
- Sit “tall” and push your “sit bones” behind you so that you are slightly arched.
- Place stick behind your back.
- Keeping your chest out lean forward over your legs.
- Don’t bend your knees!!
- Progress to placing a stick under your heels and completing the same process.



### 7. Hip Stretch:

- Sit in cross-legged position and place stick in front of you.
- Roll stick forward as far as you can while keeping your “sit bones” on the ground.
- Now switch legs to be crossed in opposite direction and repeat.



## Ankles:

Place stick under the ball of your foot and do three squats – Notice your mobility blocks.

### 8. “Stick-It” Stretch:

- Place the ball of your foot on a stick.
- Squat down as far as you can making sure your knees are in a good alignment and not pinching inward.



### 9. Ankle Joint Mobilization:

- Place ball of your foot on the stick.
- Keeping your knee in a good alignment bring knee as far over your ankle as possible. Remember that this stretch is felt in the joint not the muscle.





## Trunk Stretches:

### 10. Side Stretch:

- Sit on your knees and place stick next to your side.
- Hold stick as high up as you can.
- Slide to side sitting while reaching upward with your hand. Keep hip on the floor.
- Repeat on the other side.



### 11. Trunk Twist:

- Sit on your knees.
- Place stick behind your back.
- Keeping your hips facing forward rotate your trunk as far as you can to one side.
- Switch to the other side.



## Shoulder Exercises 20 Minute Protocol

### 1. Cat Stretch with arms bent:

- Begin in cat stretch.
- Bent elbows and bring elbows close to your head.
- Stretch through your shoulders rather than your back.
- Use a partner to help you if needed.

YES:



NO:



### 2. Shoulder and Thoracic Stretch over roller or Half Moon:

- Place roller or half moon between your shoulder blades.
- Keeping a pelvic tilt to prevent your back from arching, reach arms over your head and backward for stretch.



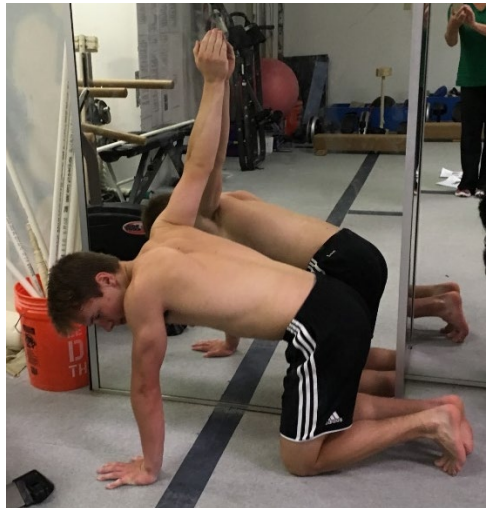
3. Crab Stretch:

- Push up into a “crab position,” stretching the front of your shoulders.



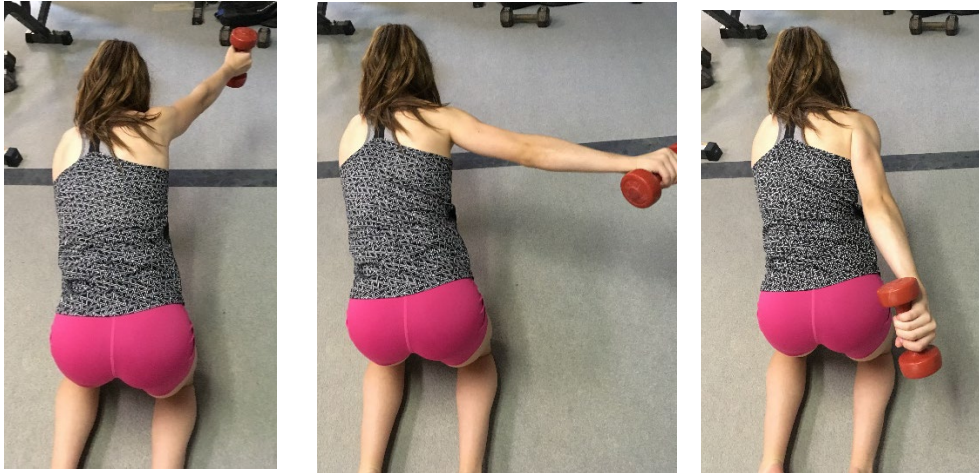
4. Abductor Stretch:

- Start on your hands and knees with your side against a wall.
- Place whole arm on wall with palm facing wall.
- Push shoulder slightly downward toward floor and rotate your trunk away from the wall.



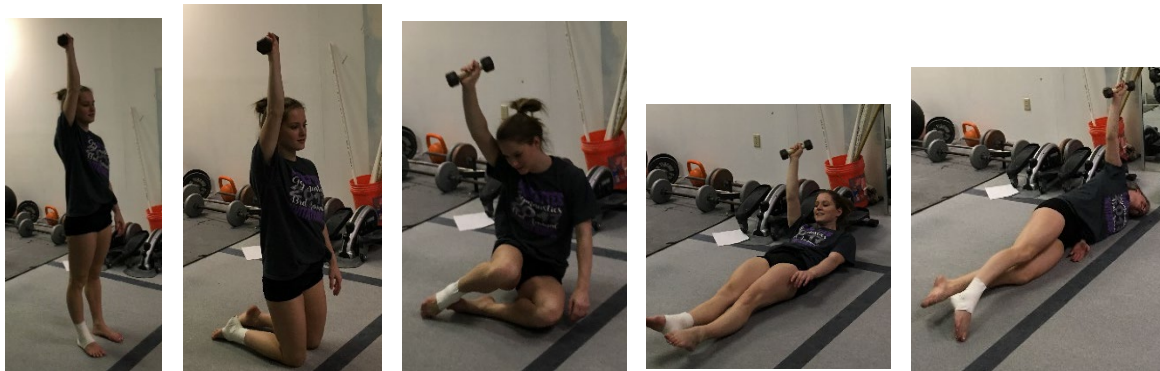
5. T's, Y's, and Straight lift on your hands and knees:

- Begin on your hands and knees with a light weight in your hand.
- Do a pelvic tilt.
- Push your shoulder blades down toward your waist.
- Lift the weight out to the side in a T.
- Now lift the weight to the side and upward in a Y.
- Lastly lift your arm straight backward by your side.



6. Overhead Weight Exercise standing to lying down: “Turkish Get Up”

- Begin in standing.
- Hold a light weight straight upward over your head for the entire exercise.
- Move down to a half-kneeling position.
- Now kneel on both knees.
- Now move to side lying.
- Now roll to back.
- Roll back to side lying.
- Move to kneeling.
- Move to half-kneeling.
- Rise to standing.



7. Overhead weight Exercise with a Twist:

- Begin in standing.
- Hold a light weight straight over your head.
- While looking at your hand twist your shoulder inward.
- Still looking at your hand twist your shoulder outward.



8. Slider Crawl:

- Start in “push-up” position with elbows on ground.
- Place slider under your feet.
- Push yourself backward with your elbows while maintaining your hollow position.



9. "Shoulder Angel" Exercise:

- Sit against a wall with elbows bent to 90 degrees and fingers pointing away from your head.
- Do a pelvic tilt.
- Squeeze your shoulder blades to bring arms closer to floor.
- Now raise arms while breathing outward and maintaining both the pelvic tilt and shoulder blade squeeze.
- Lower back to starting position as you breathe out.



10. Reverse "Snow Angel":

Gymnast then lifts arms up to sky, around to side until reaching thigh, then out to the side and back to Parallel. (Reverse jumping jack position.)



### 11. Parallet Lift:

- Place parallet on a panel mat.
- Gymnast lies on stomach with arms outstretched grasping parallet.
- Gymnast lifts parallet up toward sky as far as possible then slowly lowers back to panel mat.



### 12. Internal Rotation of the Shoulders:

- Start with elbows at your sides, bent to 90 degrees.
- Keeping your wrists in a neutral position “hug” yourself by pulling the theraband in toward your belly.



### 13. External Rotation of the Shoulders:

- Hold a theraband taughly between your two hands.
- Start with your elbows at your side, bent to 90 degrees.
- Pull the theraband outward away from your body then slowly bring back to starting point.



### 14. Serratus Shrug:

- Begin with your shoulders in a neutral position and hands on parallets.
- Push hands into parallets and shrug shoulders “upward.” (Shoulders push down in the opposite of a typical shrug.)





15. Biceps Curls:

- Begin in standing with arm at side and weight in hand. Bend your elbow bringing hand toward chest in the following three grips:
- Palm Up
- Palm Down
- Thumb Up



16. Eccentric pull-ups:

- Begin in chin-up position on a bar. (You can climb up or step off a block,)
- Slowly lower yourself from chin-up position to hanging straight.



17. Bosu push-ups:

- Use the Bosu or porcupine balls to do push-ups:
- Hands close together.
- Hands at shoulder width.
- Hands as far out to the side as you can manage.



18. Weighted lunges:

- Begin in standing with weight in hand,
- Extend arm so that your hand is straight up in the air.
- Step and lunge forward keeping arm overhead alternating steps.
- Take 5 steps forward and 5 steps backward,
- Switch to other arm.



## Wrist and Elbow 20 Minute Protocol

### Wrist Stretches:

#### 1. Wrist Stretch Both at the Same Time:

- Place palms on the floor with fingers pointing toward you. (With or without PVC)
- Keep elbows straight and walk knees backward until you feel a good stretch.
- Make sure your elbows are not hyperextended!!!!
- Now do the same thing with your elbows bent.

YES:



NO:



#### 2. Wrist Stretches (one at a time):

- Support your wrist by placing your opposite hand around the base of your wrist. (Make a U with your hand and put it on the back of your hand)
- Place your fingers toward you with your palm down and stretch your wrist.
- Bend your elbow, stretching your wrist.



3. Handstand Stretch Back against the wall:
  - Do a handstand with your back facing the wall.
  - Walk yourself away from the wall leaving feet against the wall.
  - Hold for 20 seconds.



### **Wrist and Elbow Strengthening:**

4. Wrist Rolls using the wooden bar with weight attached:
  - Bend your elbows and place them at your sides.
  - With your palms down roll the weight/rope all the way up.
  - Slowly lower the weight/rope back down with control.
  - **Repeat the process with your palms up.**



5. Porcupine Push-ups:

- Place your hands on porcupine balls with the flat side up.
- Do push-ups with hands as close as possible.
- Do push-ups at shoulder width.
- Do push-ups with arms as far to the side as you can manage.



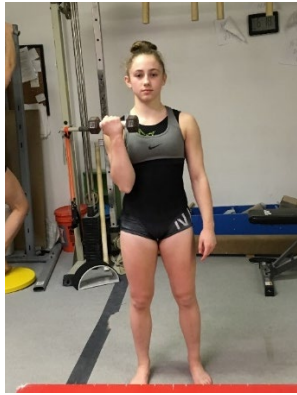
6. Handstand Wrist Exercise:

- Face the wall and do a wall handstand.
- Place one hand on slider.
- Circle slider in one direction and then the other direction.
- Switch to the other side.



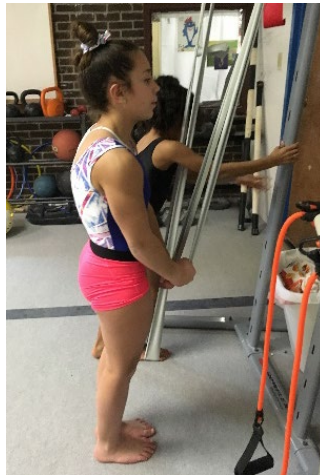
7. Arm Curls in Standing:

- Place weight in your hand and straighten arm at your side.
- Do an arm curl with your palm up by slowly bending arm and slowly lowering back to starting point. Do not lock out your elbows! Stop just before your arm is fully straight.
- Do the same with your palm down.
- Do the same with your thumb pointing upward.



8. Elbow Extension:

- Begin with elbows bent to 90 degrees.
- Pull Theraband straight downward.



9. Begin in a wide plank position with hands on sliders.
- Shift weight to one arm.
  - While keeping your elbow straight make small circles in one direction for 30 seconds, and then the other arm for 30 seconds.
  - Make sure your hips stay raised in a plank.



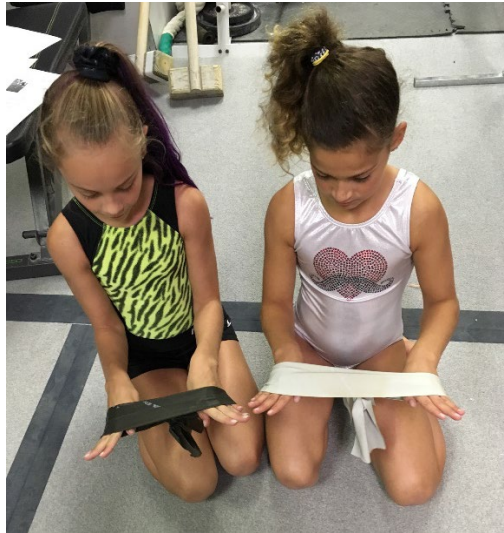
10. Eccentric pull-ups:
- Begin in chin-up position on a bar. (You can climb up or step off a block,)
  - Slowly lower yourself from chin-up position to hanging straight.



## Theraband Exercises:

### 11. Wrist slider out (Palms down):

- Start in standing with your elbows at your sides and bent to 90 degrees.
- Put a theraband around both hands on the pinky side of your hand. (palms down)
- Push the theraband out to the sides in a windshield wiper fashion.



### 12. Wrist Slider Out (Palms Up):

- Start in standing with your elbows at your sides and bent to 90 degrees.
- Place theraband around the thumb side of your hand with your palm up.
- Push the theraband out to the sides in a windshield wiper fashion.





## End Range Hip 20 Minute Protocol:

### 1. Hip Flexion:

- With foot on beam or high mat lift leg straight upward. (Ideally this should be a contraction from about 80-90 degrees of hip flexion.)



### 2. Hip Abduction:

- Start in a position where the leg is out to the side and on a small beam or block.
- Lift leg as high up as range allows without turning hip out.



### 3. Hip Extension:

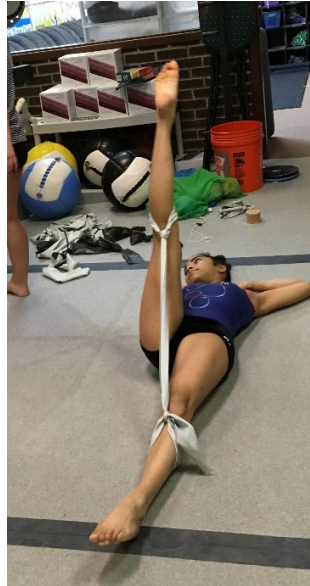
- Start with leg behind you on low beam or block with chest upright.
- Lift foot off mat toward sky as high as possible.
- Slowly lower back to beam or block.



## Theraband Exercises:

### 4. Split Kick Up:

- Place Theraband around both feet.
- Engage one leg by pushing down to the ground.
- With the opposite leg kick forcibly upward.



### 5. Split Kick Down:

- Place Theraband around both feet.
- Hold both legs up at a 90-degree angle.
- Engage one leg by actively holding it at this angle.
- With the opposite leg kick forcibly downward.



6. Straddle Kick:

- Place Theraband around both feet.
- Begin with feet pointing to ceiling.
- Keeping knees straight forcibly kick to a straddle position.



7. Hip Rotation:

- Place theraband under knees in a kneeling position.
- Lower yourself into a side sitting position.
- Now raise to a kneeling position.
- Lower yourself to side sitting in the opposite direction.



8. Hip External Rotation:

- Place theraband around your knees with your feet touching.
- Push your knees outward into a butterfly position while keeping feet together.
- Slowly bring knees back together without allowing them to ‘snap’ back.



9. Hip Adduction/ Ball Squeeze:

- Place a 4-inch ball between your knees.
- Squeeze the ball and hold for 5 seconds.
- Repeat 20 times.



**Jumps:**

- Place a theraband around each foot.
- Complete the following on tumble track or trampoline:  
Split jump left, split jump right, straddle jump

## Ankle/Knee 20 Minute Protocol

### 1. Heel Cord Stretch:

- Begin in “Downward Dog” position.
- Make sure your heels are all the way on the ground. If you can’t get them on the ground bring hands closer to feet.

YES:



NO:



### 2. Ankle Joint Stretch with your knee bent:

- Start in a half-kneeling position with the knee that is “up” in front.
- Keeping your heel down move your knee as close as you can over your foot making sure your foot is in a neutral position.
- Remember that this feels less like a “stretch.” You are increasing range in your ankle joint more than your muscle.

YES:



NO:



3. "Stick-It" Stretch:

- Place the ball of your foot on a PVC.
- Squat down as far as you can making sure your knees are in a good alignment and not pinching inward.

**YES:**



**NO:**



**Weight Bearing Strength:**

4. Graduated Heel Raises:

- Stand with your toes on a stair or beam. Your heel should be down as far as is comfortable.
- Raise your foot up until it is even with the beam. Hold 5 second. Now raise a few more inches and hold 5 seconds.
- Raise as high up as you can and hold 5 seconds.
- Now do the same thing in three stages as you lower back to the starting position.



5. In standing lift your toes and the front of your foot upward at least 30 times.



6. BAPS Board: Use Yellow BAPS board in the weight room. Slightly bend your knee. Without using your hips or trunk, circle the disc with your ankle 10 times in each direction, making sure all edges of the board hit connect with the ground as you rotate.



7. Stand on a porcupine ball and throw a ball against the wall while maintaining your balance.



Theraband Exercises:

8. Tie a theraband around your two feet near the ball of your foot. Keeping your knees and heels together push the front of your feet out to the side.



9. Place a theraband around the top of your foot and tie the other end to a stable surface. Pull foot upward toward your body.



10. Place theraband under the ball of your foot and hold the other end in your hands. Push the theraband downward, pointing your toe.



11. Place the theraband on the inside of your foot and fix the opposite end to a stable surface. Move your foot inward toward your opposite leg.





## Jumping Exercises:

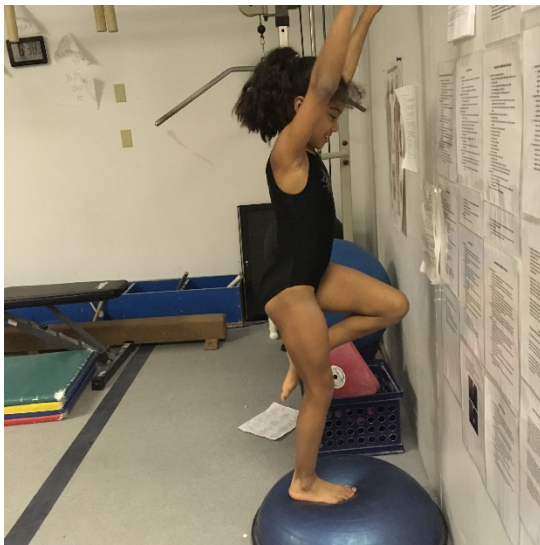
### 12. Two-legged jump

- Stand in front of a mirror and watch the angle of your knees and ankles.
- Squat as low as you can while maintaining a straight line between your knees and ankles.
- Jump onto Bosu forward, backward, left, and right.
- Watch knees and ankles as you land and try to control knee and ankle position in a straight line.



### 13. One-legged jump.

- Do the same as above but with one leg.



#### 14. “Short Arc” Quad Set

- Place your knee over a roll or 4 inch ball.
- Place a light ankle weight on your ankle.
- Lift your foot toward the ceiling and then slowly lower back to ground.



#### 15. Lunges:

- Face mirror (or a partner) and pay attention to the angle of your knee.
- Slowly lower into a lunge while being sure your knee follows a straight line down and up. If your knee starts to turn inward or outward stop and don't go further.
- The importance of this exercise is knee control.
- Over time increase the amount of lunge you can perform with control.
- Progress to holding weights in your hands



## **Osgood-Schlatter Disease:**

### **What is it?**

Here is a link to the Mayo clinic's definition, symptoms, and risk factors:

<https://www.mayoclinic.org/diseases-conditions/osgood-schlatter-disease/symptoms-causes/syc-20354864>

### **When are we most likely to see it at our gym?**

Osgood-Schlatter disease typically occurs in boys ages 12 to 14 and girls ages 10 to 13.

We see it most often when there is a large growth spurt. Basically, as the long bones grow, soft tissue lengthening can't keep up and pain at tendon insertion points occur.

Pain resolves permanently once growth plates close.

### **What can we do about it?**

I have had good results with the following protocol with many gymnasts at our gym:

1. Laser treatments – most effective is 3 treatments within 10 days with onset of pain and then as needed. See “Laser Info” on WCGA Resource page.
2. Stretching, stretching, and more stretching. Assisting soft tissue with the lengthening process decreases pressure on insertion points. Specifically – check out “Stretches and Self-Release for Osgood-Schlatter” document on WCGA Resource Page.
3. Strengthen leg muscles to assist the body in absorbing impact of doing gymnastics. See the “Knee Stabilization” exercises on the WCGA Resource page.
4. Encourage non-resistive movement of the quadriceps muscle such as walking or elliptical machine with no resistance as this warms the tissue with minimal impact.
5. Kinesiology tape when gymnast is having increased pain. See U-Tube link of taping procedure on WCGA page. I am Rock Tape Certified and prefer Rock Tape however a good alternative is CVS brand. I do not care for K-Tape brand.
6. Ice after practice!!

## **Knee Balancing Protocol for Osgood-Schlatter Disease**

### **Myofascial Stretching Techniques:**

**For each technique, you will bring the tissue to your comfortable end-range and then hold for 90-120 seconds for one repetition. As the tissue elongates you stretch further into the ROM.**

**I always tell my patients that I'd rather see them do one repetition and hold it through several elongations than to do multiple quick repetitions.**

**As this takes some time you can choose what tissue feels the "tightest" each day and spend some time in those areas.**

1. Heel Cord Stretch
  - Face a wall and lunge forward toward the wall.
  - Be sure that your back foot is perpendicular to the wall (no toe in or toe out.)
  - Make sure your back knee is straight.
  
2. Heel Cord Stretch with your knee bent:
  - Face a wall in a half-kneeling position with the knee that is "up" in front.
  - Keeping your heel down move your knee as close as you can toward the wall, stretching the back of your calf.
  
3. Stretch for the front of your foot:
  - Kneel on the floor and place the sock with tennis balls in it under your foot just below your toes.
  - Gently push down on your heel to stretch the front of your foot.
  
4. Hamstring Stretch:
  - Sit in a long sitting position.
  - Sit "tall" and push your "sit bones" behind you so that you are slightly arched.
  - Raise your arms to shoulder height.
  - Glide arms forward stretching your hamstrings.
  - Do this with toes flexed and toes pointed.
  
5. Hip Flexor Stretch:
  - Kneel on the floor with your back to the wall.
  - Place one leg so that your lower leg rests against the wall from the knee upward.
  - Do a pelvic tilt.
  - Make sure your hips are square.
  - Push hip forward on the side that is against the wall.

6. Piroformis Stretch:

- Lie on your back and cross one knee over the other knee.
- Pull both knees toward your chest.

7. Piroformis Stretch Advanced:

- For a more intense stretch begin on your hands and knees.
- Cross one leg over the other leg and slide downward toward the ground.
- Rock your hips slightly side to side until you feel the greatest stretch in your hip. Hold 90-120 sec. Repeat on other side.

8. ITB Release:

- The best way to engage the ITB is to use a cylindrical roll or tennis ball and roll it up the ITB while lying on your side. Find the tight/tender spots and hold 90-120 sec.

9. Adductor Stretch:

- Begin in sitting preferably on a therapy ball.
- Shift ball to one side and place opposite leg out to the side. Lean sideways and slightly forward towards the side with the straight leg. Hold 90-120 sec.
- This can also be done in standing with legs slightly apart.
- Shift to one side and glide opposite side toward the floor stretching the groin area.

### **Self-Release Techniques:**

There are many tools that can be used for self-release techniques. The principle for using these tools is to understand that “normal” tissue is never hot, hard, or tender.

The principles of self-release techniques require finding the trigger points and applying pressure to those areas for at least 90-120 sec. Initially there will be tenderness to palpation. As the tissue releases the tenderness decreases until the next collagenous barrier is reached. The tenderness then increases again until the next release occurs, etc.

In our gym we most often use a “peanut” which is simply two tennis balls in a tube sock.

There is a difference between “rolling out” and “self-release.”

“Rolling out” is best used before activity to “wake up” the muscles and bring circulation to the area. This is characterized by rolling back and forth over a muscle group with a peanut, foam roller, or hand roller.

“Self-Release” is done to decrease soft tissue tightness and restriction. This is completed after activity and should be repeated daily until improvement is seen in tissue mobility and pain.